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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/823,796

04/14/2004

Yoichiro Tsuji

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EXAMINER

THOMPSON, MELISSA

ART UNIT

PAPER NUMBER

1745

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

02/09/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/823,796	Applicant(s) TSUJI ET AL.	
	Examiner Melissa B. Thompson	Art Unit 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>See Continuation Sheet</u> | 6) <input type="checkbox"/> Other: _____ |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :4/14/2004, 2/08/2006, 9/19/2006.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: Page 1, paragraph 2, the word "is" should be removed from line 4. Page 3, paragraph 9, the word "minimizes" should be the word "minimize". Page 3, paragraph 10, a period is missing at the end of the paragraph.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. In claim 3, the compressed thickness would vary depending on the pressure applied and therefore it would be unclear what the final compressed thickness would be.

5. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. The term "substantially" in claim 8 is a relative term which renders the claim indefinite. The term "substantially" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1,2,4,9,10 are rejected under 35 U.S.C. 102(b) as being anticipated by Kato et al. (U.S. Patent Publication 2002/0187384 A1).

Kato et al. disclose a fuel cell that includes a membrane electrode assembly (MEA) and a separator. The MEA includes an electrolyte membrane and a pair of electrode disposed on opposite sides of the membrane (paragraph 35). Kato et al. disclose a first diffusion layer disposed between the first catalyst layer and a separator provided on an anode side of the MEA and a second diffusion layer disposed between the second catalyst layer and a separator provide on the cathode side of the MEA (paragraph 35). Kato et al. disclose that the separator on an anode side of the MEA includes a fuel gas passage and a coolant passage, while the separator on a cathode side of the MEA includes an oxidant gas passage and a coolant passage (paragraph 35). As seen in Figure 3, Kato et al. show a groove (27B) over the edge of the MEA, with a seal (50), or

gasket, arranged outside the groove of the separator. With respect to claims 9 and 10, when the structure of Kato et al. is pressed together to form the fuel cell, sandwiching a pair of electrodes with a pair of separators, it is inherent that the pressure applied would vary with respect to the position. When pressure is applied to the entire structure, a lower pressure would be applied to the edges of the MEA due to groove. With the groove over the outer edge of the MEA, the edge would not have as much pressure applied as the center would; a portion of the pressure would be absorbed by the groove, resulting in less pressure at the edges of the MEA and therefore at the edges of the gas diffusion layer.

9. Claims 1, 2, 5-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsutomu (JP Publication Number 08-148170).

Tsutomu discloses a polymer electrolyte fuel cell with electrodes and a polyelectrolyte film with positive and negative electrodes (paragraph 3). Tsutomu discloses that the peripheral sections of the electrodes (Figure 4) are densified and the densified sections are used for gas sealing with a packing (abstract). Tsutomu discloses that the peripheral sections are impregnated with a solution of a densifying agent formed out of an adhesive (abstract). This densifying agent is particularly effective for the gas diffusion electrode, or layer (abstract). As seen in Figure 4 the separators contain a groove over an edge of the electrodes, which is filled with a packing, or gasket. The groove, as seen in Figure 4, is not located near the gas channels of the fuel cell and is therefore not connected to the gas channels, as defined in applicants' claims 5 and 8.

10. Claims 1, 2, and 5-8 are rejected under 35 U.S.C. 102(e) as being anticipated by Artibise et al. (U.S. Patent Number 7,070,876 B2).

Artibise et al. disclose a membrane electrode assembly (MEA) that comprises a laminate of electrolyte membrane, cathode electrode, and anode electrode (column 5, lines 38-40 and seen in Figure 3c). The material used to form the edge seal is impregnated into the pores of both electrodes; the impregnated material saturates the pores thereby preventing gas from leaking around electrolyte membrane at the edges of the electrodes (column 5, lines 41-45).

Artibise et al. discloses that the impregnated material serves to anchor edge seals to their respective MEA subassemblies (column 5, lines 46-47). For a stronger bond to the MEA subassembly, it is advantageous for the molded edge seal to extend outside the pores of the electrode and to encapsulate the entire end of the MEA subassembly as shown in Figure 3c (column 5, lines 47-51).

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa B. Thompson whose telephone number is (571) 272-2758. The examiner can normally be reached on Monday through Friday from 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Trainer, Susy Tsang-Foster can be reached on (571) 272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1745

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MBT


SUSY TSANG-FOSTER
PRIMARY EXAMINER